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Minh Thang Cao

EDUCATION

Bachelor of Computer Science
Software Engineering Stream, Carleton University.
09/2019 – 05/2024. Ottawa, Ontario, Canada.
CGPA: **11.75**/12 (A+). On **Dean's Honor List** since 09/2019.

LANGUAGES AND TECHNOLOGIES

- Python, C/C++, JavaScript, TypeScript, Java, HTML
- React, React Native, Node.js, Express.js, MongoDB, CSS/SASS, Git, Linux

EXPERIENCE

Software Development Intern — **Kinaxis** — **09/2021 – 12/2021**

Supply Demand Allotments Data Visualization

- Built and generated data worksheets that collect items from the internal **C++ analytics framework**.
- Developed an interactive and responsive data visualization with **D3.js** library integrated with **JavaScript + HTML** environment.
- Improved the **ease to analyze** allotments data for supply planners and increased **debugging productivity** in the related field.
- Helped onboard Kinaxis's new developers by providing the visual result of internal allotment algorithms.

Software Engineer Intern — **Kinaxis** — **05/2021 – 08/2021**

Supply Planning Structure Cycles Detection 🔗

- Investigated and analyzed a specialized product structure cycle detection **graph algorithm** that combines variances of strongly connected components and cycles enumeration algorithms.
- Implemented the algorithm using the company's internal **C++** frameworks to **solve lasting problems** in the old algorithm that create cycle duplications in the result to enhance the supply planning process for **over 100 global enterprises**.
- Improved the **running time** of the platform in cycles detection from more than **12 hours to 1 second** on a customer dataset and produced quality result data models without existing issues from the old cycle detector.
- Validated the **correctness** of the algorithm on real data set through **unit tests** that exceed the **75% coverage** goal.

Front-end Developer — **CU Blueprint** — **09/2020 – 09/2021**

- Developed a **CRM full-stack web** application for a non-profit organization that **significantly improves the processing time** of their services by migrating to software-automatic workflow.
- Coordinated with developers and designers in an **Agile** team to build a **user-friendly** and **responsive** user interface with reusable components using **React, CSS and Material UI** that integrates with Node.js server.

Undergraduate Researcher — **Carleton University** — **05/2020 – 08/2020**

Closest-pair Doubling 🔗

- Explored a **divide-and-conquer** algorithm that calculates the closest-pair distance of points on multi-dimensional spaces without knowing coordinates using the **doubling dimension** definition and implemented it **from scratch** with C++ and Boost library.
- Proved the algorithm's logarithmic running time **in practice** by analyzing the output data and successfully led the original research project to a conclusion with the confirmation of the involving professors.

Undergraduate Researcher — **Carleton University** — **01/2021 – 04/2021**

Finger Search 🔗

- Studied Finger Search, an extension that improves the **average running time** of operations that require searching.
- Applied the operation on Treap, SkipList and 2-4 Tree using **C++** following up by examining and reporting their differences in **time complexity** to decide which data structure is the most suitable.

Teaching Assistant — **Carleton University** — **09/2020 – Present**

- Participating in engaging tutorial sections to help professors **guide** more than **1000 students** of three semesters through materials of Computer Science courses.
- Holding weekly office hours to **answer questions** and help students **improve their understanding** of the materials.
- Grading and providing **detailed feedback** for students' assignments and tests.

PROJECTS

Connect 4 🔗 — **Carleton University** — **09/2020 – 12/2020**

- Designed and developed a **full-stack** web game using the **MERN stack** technologies with React **responsive** user interface and Node.js **RESTful API** endpoints that process queries efficiently.
- Integrated **real-time interactions** for gameplay and notification system using Socket.IO.
- Implemented the JWT **authentication** system to handle the user database stored in MongoDB.

ACHIEVEMENTS

- **Entrance Scholarship** for Ontario high-school students with average grade higher than 90%.